

# Notice of Allowability

Application No.

09/919,699

Examiner

LAM S NGUYEN

Applicant(s)

MILLIGAN ET AL.

Art Unit

2853

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 05/24/2004.
2. ☒ The allowed claim(s) is/are 30,32,33,35 and 37-49.
3. ☒ The drawings filed on 31 July 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 04/05/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Peter Reitan on 06/07/2004.

**In the claims:**

**Claims 1-14: Cancelled**

**Claim 30: Rewrote as follows:**

30. A fluid ejecting device comprising:

a silicon substrate having a <100> crystalline orientation;

a plurality of fluid drop generators formed on a first surface of said silicon substrate;

a fluid feed slot extending from a second surface of said silicon substrate to said first surface;

said fluid slot formed by deep reactive ion etching from the second surface of said silicon substrate to a depth of at least one-half a thickness of the silicon substrate followed by anisotropic wet etching, and having an opening at the first surface having a width W1 that is less than a width W2 of an opening at the second surface.

**Claim 32: Rewrote as follows:**

32. A fluid ejection device comprising:

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a silicon substrate having a <100> crystalline orientation;

a plurality of fluid drop generators formed on a first surface of said silicon substrate;

a fluid feed slot extending from a second surface of said silicon substrate to said first surface;

said fluid slot formed by deep reactive ion etching from the second surface of said silicon substrate followed by anisotropic wet etching, and having an opening at the first surface having a width W1 that is less than a width W2 of an opening at the second surface, wherein said fluid feed slot was formed by deep reactive ion etching to a depth of at least one-half of a thickness of the substrate.

**Claim 35: Rewrote as follows:**

35. A fluid ejection device comprising:

a silicon substrate having a <100> crystalline orientation;

a plurality of fluid drop generators formed on a first surface of said silicon substrate;

a fluid feed slot extending from a second surface of said silicon substrate to said first surface;

said fluid slot formed by deep reactive ion etching from the second surface of said silicon substrate followed by anisotropic wet etching, and having an opening at the first surface having a width W1 that is less than a width W2 of an opening at the second surface, wherein the substrate has a thickness of about 675 micrometers or less; and

wherein said fluid feed slot was formed by deep reactive ion etching to a depth of at least one-half of a thickness of the substrate.

### **REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

**Referring to claims 30, 32, and 35:** The most pertinent art fails to disclose wherein said fluid slot formed by deep reactive ion etching from the second surface of said silicon substrate to a depth of at least one-half a thickness of the silicon substrate followed by anisotropic wet etching, and having an opening at the first surface having a width W1 that is less than a width W2 of an opening at the second surface. Therefore, the claimed invention is not disclosed by the cited prior art.

**Referring to claims 33, 36, 38, and 44:** The reasons for allowance were already indicated in the previous office action.

Claims 37, 39-43, and 45-49 are allowed because they depend directly/indirectly on claim 35, 38, or 44.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN  
June 7, 2004



HAI PHAM  
PRIMARY EXAMINER